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New Records of Fishes from Kochi Prefecture, Japan

By

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New Records of Fishes from Kochi Prefecture, Japan

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In the present paper I propose to record 25 species of fishes which have not been reported hitherto from Kochi Prefecture, 6 of which, moreover, seem to be new to the fauna of Japan. These are: *Myctophum aurolaternatum* GARMAN (Myctophidae), *Cephalopholis sexmaculatus* (RÜPPELL) (Serranidae), *Callyodon aeruginosus* (CUVIER & VALENCIENNES) (Callyodontidae), *Pseudorhombus levisquamis* (ŌSHIMA) (Bothidae), *Arnoglossus intermedius* (BLEEKER) (Bothidae) and *Psettina profunda* (WEBER) (Bothidae). They were collected from various localities of the prefecture, with the assistance of students of Kochi University and other persons. All the specimens belonging to Heterosomata were collected at the Mimase Fish Market, Kochi City, by Mr. Kunio Amaoka, a student of Kochi University, who made their precise counts and measurements, and some of the duplications observed are preserved in my laboratory.

Rajidae

1. *Raja gigas* ISHIYAMA Zō-kasube

Raja gigas ISHIYAMA, Journ. Shimonoseki Coll. Fish., Vol. 7, no. 2, 3, 1958, p. 386, figs. 84w, 86. Aichi Prefecture; Kumano-nada.

Very rarely seen at the Mimase Fish Market, Kochi City, but too large to preserve. Commonly the total length is over 1500 mm., so only two tails are preserved in my laboratory. They are caught by fishing boats commonly known as "sokobiki-ami" in Kochi, which is being operated by motors much weaker than in otter-trawlers every year from the beginning of October to the end of April. I am greatly indebted to Dr. Reizō Ishiyama, Shimonoseki College of Fisheries, who helped me in the identification of some species of the family Rajidae.

Previously known in the regions from Maisaka, Shizuoka Prefecture to Kumano-nada, Wakayama Prefecture and Totoro, Miyazaki Prefecture.

Myctophidae

2. *Myctophum aurolaternatum* GARMAN Hikari-hadaka (new Japanese name)

Myctophum aurolaternatum GARMAN, Mem. Mus. Comp. Zool. Harvard, vol. 24, 1899, p. 264, pl. 55, fig. 3. Off the Pacific coast of Panama.

D. 15; A. 24; L. l. 47. Head 3.7 in standard length; depth 5.5; eye 3 in head; snout 4.5; interorbital 3.6; depth of caudal peduncle 3.6. Photophores: Br 3; OP 2; PVO 2; PO 5; VO 4; SAO 3; AOa 11; AOp 6. Gill rakers on first arch 6+1+12. Body slender, tapering rather evenly from nape to moderately slender caudal peduncle. Scales cycloid. Color in formalin brownish above, rather pale below; all the fins pale except caudal which is brownish.

A single specimen, 83 mm in total length (Cat. No. 2280), from Mimase, January

10, 1953.

Originally known from Panama, and later from the Gulf of California, it is now reported from Japan for the first time. This is a noteworthy extension of distribution.

3 *Myctophum evermanni* GILBERT Magari-hadaka

Myctophum evermanni GILBERT, U. S. Fish Comm., Bull., vol. 23, pt. 2, 1903 (1905), p. 597, pl. 70, fig. 2. South of Oahu; off Lanai; Nühau; Laysan.

D. 14; A. 20; L. l. 38. Head 3.5~3.9 in standard length; depth 4.4~4.8; eye 2.8~3 in head; snout 7.3~7.5; interorbital 3.2~3.7; depth of caudal peduncle 3.2~3.3. Photophores: Br 3; OP 2 (lower one rudimentary); PVO 2; PO 5; VO 4; SAO 3; AOa 8; AOp 5. Gill rakers on first arch 5−6+1+15−16. Body robust, tapering rather evenly from vertical of dorsal origin to moderately heavy caudal peduncle. Scales cycloid. Supra-anal photophores angulated; second ventral photophores not elevated; 1 postero-lateral, just below lateral line; second precaudal little above first, far below lateral line. Color of preserved specimens blackish brown above, pale below; all the fins pale except caudal which is brownish.

Two specimens, 50 (Cat. No. 2282) and 65 mm (Cat. No. 2281) in total length respectively, from Mimase, January 10, 1953.

Occurs in the regions from the east coast of Southern Japan and Hawaii.

Exocoetidae

4. *Oxyporhamphus micropterus micropterus* (CUVIER & VALENCIENNES) Sayori-tobi-uwo

Exocoetus micropterus CUVIER & VALENCIENNES, Hist. Nat. Poiss., vol. 19, 1846, p. 127, pl. 563. Port King George, Australia.

Oxyporhamphus micropterus micropterus BREDER, Bull. Bingham Oceanogr. Collection, 6, art. 5, 1938, p. 4. Pacific side of Central America.

D. 13~15; A. 14; P. 11~12; V. 6; L. l. ca. 50. Head 4.5 in standard length; depth 5.4~5.7; eye 3~3.4 in head; snout 3.4~4; interorbital 3~3.2; depth of caudal peduncle 3.4. Scales on both sides in my specimens have been rubbed off. Color in formalin brownish above, pale below; pectorals blackish, broadly edged with whitish below.

Two specimens, 130 (Cat. No. 8226) and 131 mm (Cat. No. 8227) in total length respectively, from Susaki, by Mr. Tetsushi Toyonaga, October 20, 1958.

Recorded from several localities over a wide area of the Indo-Pacific. In Japan it ranges as far north as the mouth of Tokyo Bay.

Serranidae

5. *Cephalopholis sexmaculatus* (RÜPPELL) Kokuhan-hata (new Japanese name) (Fig. 1)

Serranus sexmaculatus RÜPPELL, Atlas Reise Nördl. Africa, Fische, Rothen Meeres, 1828, p. 107. Red Sea.- GÜNTHER, Mus. Godeffroy, Jour., vol. 1, pt. 1, 1873, p. 3, pl. 2. Society Islands; Paumotus.

D. IX, 15; A. III, 9; L. l. ca. 100; gill rakers on first arch 8+1+13. Head 2.5 in standard length; depth 2.8; eye 6.6 in head; snout 3.3; interorbital 6; depth of caudal

peduncle 3.6. Color in the fresh state reddish brown generally, with fine blue dots over all of head and body. Head with several blue bands, roughly radiating from eye. On back along bases of dorsals, 4 large black blotches and 2 as saddles over upper surface of caudal peduncle. The black color has not altered after nearly six months' immersion in formalin. These blotches serve to distinguish this species at once from any other member of the group known to me.

A single specimen, 167 mm in total length (Cat. No. 8357), at the Kochi Market, by Mr. Tsuneo Hirata, January 10, 1959. The figure is the work of Mr. Hirata.

Widely distributed in the seas from the Philippines to Africa; Red Sea and Polynesia. Kochi Prefecture is probably its northernmost range.

6. *Lateolabrax latus* KATAYAMA Hira-suzuki

Lateolabrax latus KATAYAMA, Jap. Journ. Ichthy., vol. 6, nos, 4~6, 1957, p. 154, fig. 2. Senzaki, Yamaguchi Prefecture.

Firstly reported by Dr. Masao Katayama, Fisheries Laboratory, Faculty of Education, Yamaguchi University, from Senzaki, Kochi etc., I have since obtained one specimen, 75 mm in total length (Cat. No. 4356), from the Kuma River, Kochi City, and another, 100 mm in total length (Cat. No. 1956), from Awaji, Hyōgo Prefecture. The two specimens appear to agree in essential respects with Katayama's figure and description.

Distributed in the regions from Numazu, Shizuoka Prefecture to Senzaki, Yamaguchi Prefecture and Nagasaki.

7. *Cromileptes altivelis* (CUVIER & VALENCIENNES) Sarasa-hata

Serranus altivelis (CUVIER & VALENCIENNES, Hist. Nat. Poiss., vol. 2, 1828, p. 324, pl. 35. Java.

D. X, 18; A. III, 10; L. l. ca. 90; gill rakers on first arch 8+1+15. Head 2.8 in standard length; depth 2.7; eye 7.2 in head; snout 5.4; interorbital 8.6; depth of caudal peduncle 2.9. Body strongly compressed, covered with very small cycloid scales. Head concave. Color in formalin dull reddish brown. Head, body and fins marked with round blackish spots, greatly less in diameter than interspaces, the largest on back smaller than size of eye.

A single specimen, 450 mm in total length (Cat. No. 8478), from the Kochi Market, May 5, 1959.

This seems to be the second record of occurrence of this species in Japan, the first being my record from Wakayama Prefecture. Distributed in the seas from Japan to India and Australia.

Malacanthidae

8. *Malacanthus latovittatus* (LACÉPÈDE) Kitsune-amadai

Labrus latovittatus LACÉPÈDE, Hist. Nat. Poiss., vol. 3, 1798, p. 527, pl. 28, fig. 2. Great Equatorial Ocean.

Oceanops latovittata JORDAN & SEALE, U. S. Bur. Fish., vol. 25, 1906, p. 277, pl. 39. Pago Pago, Samoa.

D. 49; A. 38; L. l. ca. 120. Color in formalin violet blue, belly abruptly pale; a

broad longitudinal black band on the side of body. Caudal black, with a white square; upper and lower rays brownish.

A single specimen, 362 mm in total length (Cat. No. 8545), from Okinoshima, June 28, 1959.

Hitherto known from Okinawa to Mauritius; Micronesia and Polynesia.

Labridae

9. *Hemigymnus fasciatus* (BLOCH) Ōkuchi-bera

Labrus fasciatus BLOCH, Naturges. Ausländ. Fische, vol. 6, 1792, p. 6, pl. 290. Japan.

Color in formalin yellowish brown, bluish below, with 5 broad blackish transverse bands; the first behind base of pectoral, the last on caudal peduncle.

A single specimen, 260 mm in total length (Cat. No. 8541), from Okinoshima, June 28, 1959.

Hitherto known from Amami-Ōshima to Africa; Micronesia and Samoa.

10. *Macropharyngodon geoffroy* (QUOY & GAIMARD) Nodoguro-bera

Julis geoffroy QUOY & GAIMARD, Voyage "Uranie", Zool., 1824, p. 270, pl. 56, fig. 3. Hawaiian Islands.

Julis meleagris CUVIER & VALENCIENNES, Hist. Nat. Poiss., vol. 13, 1839, p. 481. Ulea, Caroline Islands.

D. IX, 11; A. III, 11; L. l. 28. Head 3.3 in standard length; depth 2.6; eye 6.3 in head; snout 3.8; interorbital 3.8; depth of caudal peduncle 1.8. Color in formalin grayish brown, side of body with about 10 irregular pale stripes separated by darker ones; cheek and opercles with narrow wavy bluish lines. Dorsal brownish, with a median series of large round bluish spots; base of membrane of anterior four dorsal spines black, greenish yellow at tip. Caudal bluish, with three vertical darker lines.

A single specimen, 152 mm in total length (Cat. No. 8542), from Okinoshima, June 28, 1959.

Hitherto known from Amami-Ōshima to the East Indies; New Guinea; Melanesia; Polynesia and Hawaii.

Callyodontidae

11. *Callyodon aeruginosus* (CUVIER & VALENCIENNES) Oziro-budai (new Japanese name)

Scarus aeruginosus CUVIER & VALENCIENNES, Hist. Nat. Poiss., vol. 14, 1839, p. 257. Red Sea.

Callyodon pindae J. L. B. SMITH, Rhodes Univ. Ichthy. Bull., no. 1, 1956, p. 11, pl. 45, I. Pinda, Mozambique.

D. IX, 10; A. III, 9; P. 15. Six median predorsal scales; 2 rows of scales on cheek, with 3 ones in the ventral row. Caudal truncate, the outer rays somewhat elongate. Color in formalin reddish brown; caudal peduncle behind end of base of dorsal abruptly lighter; teeth whitish. I have followed Schultz's opinion (1958: U. S. Nat. Mus. Bull. 214) in the synonymy of this species.

A single specimen, 300 mm in total length (Cat. No. 8517), from Okinoshima, June

8, 1957.

Widely distributed in the seas from Japan to Red Sea; Africa; New Guinea and Polynesia. Kochi Prefecture is probably its northernmost range.

Hepatidae

12. *Zebrasoma flavescens* (BENNETT) Goma-hagi

Acanthurus flavescens BENNETT, Zool. Jour., vol. 4, 1828, p. 40. Oahu, Hawaiian Islands.

D. V, 23; A. III, 20. Head 3.2 in standard length; depth 1.6; eye 5 in head; snout 1.5; interorbital 3.2; depth of caudal peduncle 3. Body deep, compressed; snout long, produced, pointed. Side of caudal peduncle in front and posterior portion of side with a large tract of hooked villiform prickles. Color in formalin brownish; pectoral yellowish. This species is often yellow in color.

A single specimen, 180 mm in total length (Cat. No. 8544), from Okinoshima, June 28, 1959.

Hitherto known from Amami-Ōshima to Africa; Polynesia and Hawaii.

Teuthidae

13. *Siganus rostratus* (CUVIER & VALENCIFNNES) Hana-aigo

Amphacanthus rostratus CUVIER & VALENCIENNES, Hist. Nat. Poiss., vol. 10, 1835, p. 116. Massauah, Red Sea.

D. XIII, 10; A. VII, 9; gill rakers on first arch 6+1+16, lanceolate. Head 4 in standard length; depth 2.3; eye 3.5 in head; snout 3; interorbital 2.8; depth of caudal peduncle 4.3. Body elongately ellipsoid; caudal peduncle slender; caudal deeply forked. Color in formalin uniform brownish; head bluish below. Caudal lobes with several indistinct brownish cross-bands.

A single specimen, 195 mm in total length (Cat. No. 8543), from Okinoshima, June 28, 1959.

Hitherto known from Amami-Ōshima to Red Sea; Africa; Australia and Polynesia.

Scorpaenidae

14. *Peloropsis frondosus* (GÜNTHER) Boro-kasago (Fig. 2)

Scorpaena frondosa GÜNTHER, Proc. Zool. Soc., 1891, p. 482. Ceylon.

Peloropsis xenops KAMOHARA, Zool. Mag., Tokyo, vol. 54, 1942, p. 28, fig. 1. Shirahama, Wakayama Prefecture.

D. XI, I, 9; A. III, 5; P. 16; scales cycloid, small, somewhat irregularly arranged; head and fins wholly naked; gill rakers on first arch 6+1+13. Head 2.2 in standard length; depth 2.2; eye 7.4 in head; snout 2.5; interorbital 7.4; depth of caudal peduncle 3.9. Body everywhere closely compressed; interorbital space very deeply channeled. Head, body and fins well furnished with cutaneous flaps. Color in the fresh state uniform reddish; head bluish; head, lower parts of body and fins mottled with white. A black blotch on the membrane between 7th and 8th dorsal rays.

A single specimen, 205 mm in total length (Cat. No. 8465), from Susaki, by Mr. Masuki Nagase, Susaki Fish Market, March 12, 1959. It is the second record in Japan;

the first, two specimens, 155 and 180 mm in total length respectively, being from Shirahama, Wakayama Prefecture. *Peloropsis xenops* GILBERT (Bull. U. S. Fish Comm., vol. 23, pt. 2, 1903 (1905), p. 630, fig. 245. Avan Channel, Hawaii) may possibly be a variant of this species, rather than a distinct species.

Previously known from Wakayama Prefecture and Ceylon.

Echeneidae

15. *Phtheilichthys lineatus* (MENZIES) Suji-koban

Echeneis lineatus MENZIES, Trans. Linn. Soc. London, I, 1791, p. 187, tab. 17, fig. 1. Pacific Ocean between the tropics.

Body elongate, slender, gradually tapering toward caudal peduncle. Scales very small; disc somewhat longer than head, with 10 laminae. Color in formalin dark brown; two, pale, longitudinal lines run parallel to each other on each side of body. Dorsal, anal and pectoral pale; ventral dark, margined all with whitish; caudal blackish, upper and lower margins being pale.

A single specimen, 71 mm in total length (Cat. No. 7832), from Susaki, by Mr. Tetsushi Toyonaga, March 20, 1958.

Widespread in the tropical Pacific. In Japan hitherto known from Misaki and Shimokurida, Kyoto Prefecture.

Bothidae

16. *Pseudorhombus oligodon* (BLEEKER) Nanyō-garei

Rhombus oligodon BLEEKER, Nat. Tijd. Ned. Ind., 6, 1856, p. 419. -BLEEKER, Act. Soc. Indo-Neerl., 5, 1858–9, pl. 3, fig. 2. Japan.

D. 78~82; A. 61~64; P. (o) 12; P. (b) 11; L. l. 80~84. Scales ctenoid on both sides. Color in the fresh state greenish brown; a large dark spot at commencement of straight part of lateral line; vertical fins with irregular brown spots and markings. Described from 6 specimens, 142~246 mm in standard length, from Mimase.

Previously known from Nagasaki to Formosa and China.

17. *Pseudorhombus arius* (HAMILTON) Tenjiku-garei

Pleuronectes arius HAMILTON, Fishes Ganges, 1822, p. 128. Calcutta.

D. 74~78; A. 56~59; P. (o) 11~12; P. (b) 10~12; L. l. 75~79. Scales of ocular side ctenoid; cycloid on blind side. Color in the fresh state greenish brown; a dark spot at junction of straight and curved parts of lateral line; vertical fins with scattered small dark spots. Described from 6 specimens, 126~155 mm in standard length, from Mimase.

Hitherto known from Shimizu, Shizuoka Prefecture to Kagoshima; Africa and Australia.

18. *Pseudorhombus levisquamis* (ŌSHIMA) Taiwan-ganzō

Spinirhombus levisquamis OSHIMA, Japan. Journ. Zool., 1 (5), 1927, p. 189. Formosa.

D. 78~87; A. 59~64; P. (o) 12~13; P. (b) 11~14; L. l. 68~82. Scales mostly cycloid on ocular side, except at edges of body, where there is a narrow strip of ctenoid scales; scales of blind side all cycloid. Color in the fresh state greenish brown,

with traces of darker spots, and with a series of dark rings near upper and lower edges of body. Described from 2 specimens, 82 and 136 mm in standard length respectively, from Mimase.

Hitherto known from Taiwan (Formosa) and China, it is now recorded for the first time from Japan.

19. *Arnoglossus intermedius* (BLEEKER) Madara-daruma (new Japanese name)

Platophrys (*Arnoglossus*) *intermedius* BLEEKER, Ned. Tijdschr. Dierk., vol. 3, 1866, p. 47. Menado, Celebes.

D. 82; A. 63; p. (o) 11; P. (b) 9; L. l. 53. Eyes separated by a concave space; gill rakers palmate; scales ctenoid on ocular side, cycloid on blind side. Color in the fresh state brownish; a number of dark brown blotches and annular markings on body; all the fins with numerous dark brown spots. Described from a specimen, 121 mm in standard length, from Mimase.

Hitherto known from the Philippines to Red Sea; Australia and the Solomon Islands. It shows that this tropical species ranges to Japan, where it has been found for the first time.

20. *Psettina profunda* (WEBER) Soko-daruma (new Japanese name)

Arnoglossus profundus WEBER, "Siboga"-Exped., Fische, 1913, p. 430. pl. 6, fig. 3. Madura-See; Timor See.

D. 90~103; A. 69~80; P. (o) 11~12; P. (b) 9~11; L. l. 55~60; gill rakers on lower limb of first arch 6~8. Lower eye well in advance of the upper. Number of vertebrae 38 (35 in *ijimae*). Color in the fresh state reddish brown, clouded with darker; vertical fins with brown blotches. J. R. Norman (1934) states that this species will probably prove to be identical with *P. ijimae* of Japan, but differs from it in several essential respects. Described from 30 specimens, 58~122 mm in standard length, from Mimase.

Originally known from Indo-Australian Archipelago, it is now reported from Japan for the first time.

Pleuronectidae

21. *Limanda yokohamae* (GÜNTHER) Mako-garei

Pleuronectes yokohamae GÜNTHER, Shore Fishes Challenger, 1880, p. 69. Inland Sea, Japan; Yokohama Bay.

D. 66~71; A. 50~53; P. (o) 11~12; P. (b) 10~12; L. l. 78~82. Eyes separated by a ridge, which is scaled. Scales ctenoid on ocular side; ctenoid (in the male) or cycloid (in the female) on blind side. Color in the fresh state greenish brown, indistinctly mottled with darker. Vertical fins are dotted with brown. Described from 4 specimens, 146~155 mm in standard length, from Mimase.

Hitherto known from Hokkaidō to Ōita Prefecture; Korea; Vladivostok and East China Sea.

Eleotridae

22. *Eleotriodes puellaris* TOMIYAMA Otome-haze

Eleotriodes puellaris TOMIYAMA, Figs. & Descripts. Fish. Japan, vol. 55, 1956, p. 1136,

pl. 224, fig. 575. Kiragawa, Kochi Prefecture.

A single specimen, 93 mm in total length, was collected at Kiragawa (about 60 km east of Kochi City), March 27, 1929. It is now deposited at the Zoological Laboratory, Tokyo University, and no specimen is at hand.

Known only from Kochi Prefecture at present.

Gobiidae

23. *Gobius javanicus* BLEEKER Hina-haze

Gobius javanicus BLEEKER, Nat. Tijds. Ned. -Ind., vol. 11, 1856, p. 88. Java.
Vaimosa bikolana HERRE, Philip. Bur. Sci. Monogr., vol. 23, 1927, p. 151, pl. 11, fig. 2. Creek at Barrio Puru, Legaspi, Albany Pro., Luzon.
Gobius tessellata OKADA & IKEDA, Trans. Biogeogr. Soc. Jap., vol. 3, no. 1, 1938, p. 82, pl. 3, fig. 3. Okinawa.

Several specimens, 27 to 30 mm in total length, were collected in the Kagami River, Kochi City, by Mr. Sadao Kitaoka, a teacher of the Tosa Girls' High School at present, April 16, 1957. According to Dr. Ichiro Tomiyama of the Tokyo University, *Gobius javanicus*, *Vaimosa bikolana* and *Gobius tessellata* are identical, and I follow him in my treatment of the fishes of this group.

Occurs from Suruga Bay, Shizuoka Prefecture; Miyazaki Prefecture; Yakujima; Okinawa; the Philippines and the East Indies.

Macrouridae

24. *Lionurus japonicus* MATSUBARA Kagami-hige (Fig. 3)

Lionurus japonicus MATSUBARA, Jour. Sigenkagaku Kenkyusyo, 1 (2), 1943, p. 149, fig. 9. Kumano-Nada.

D. II, 10; P. 21; V. 12. Head 6.5 in standard length; depth 8.6. Body slender, compressed. Snout short, bluntly pointed; barbel short, about as long as eye. Color in formalin brownish, scattered with small dark spots.

A single specimen, 132 mm in total length, from Mimase, by Mr. Osamu Okamura, January 5, 1959.

Previously known only from Kumano-Nada.

25. *Hymenocephalus lethonemus* JORDAN & GILBERT Ito-dara

Hymenocephalus lethonemus JORDAN & GILBERT, Bull. U. S. Fish Comm., 1902 (1904), p. 615, with fig. Sagami Bay.

Ventral with 11 or 12 rays, its outer one greatly produced. Barbel absent.

Many specimens, 90~100 mm in total length, from Mimase, by Mr. Osamu Okamura, January 5, 1959.

Hitherto known from Sagami Bay to China Sea; the Philippines and the East Indies.

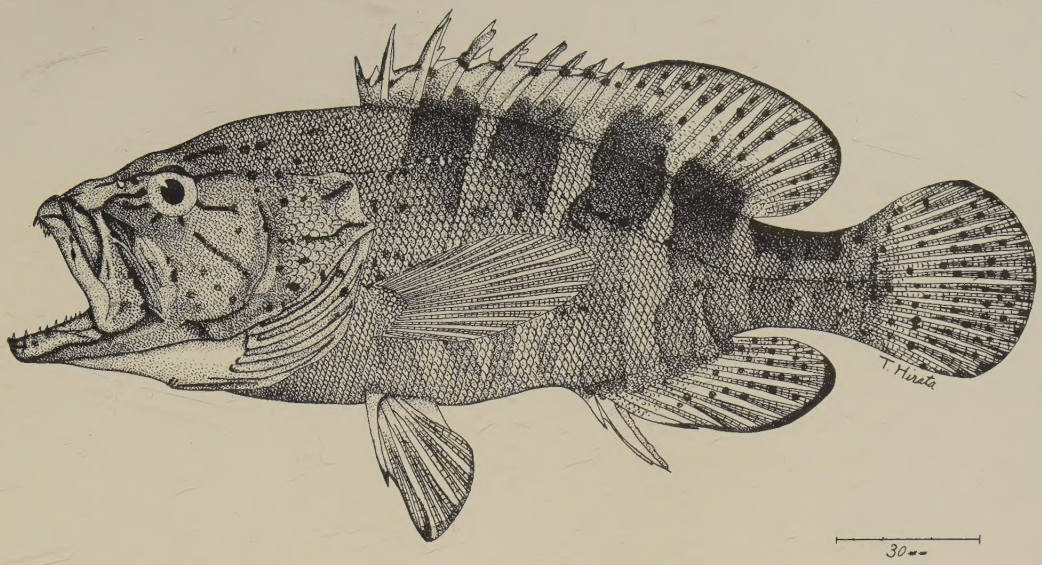

Fig. 1. *Cephalopholis sexmaculatus* (RÜPPELL)

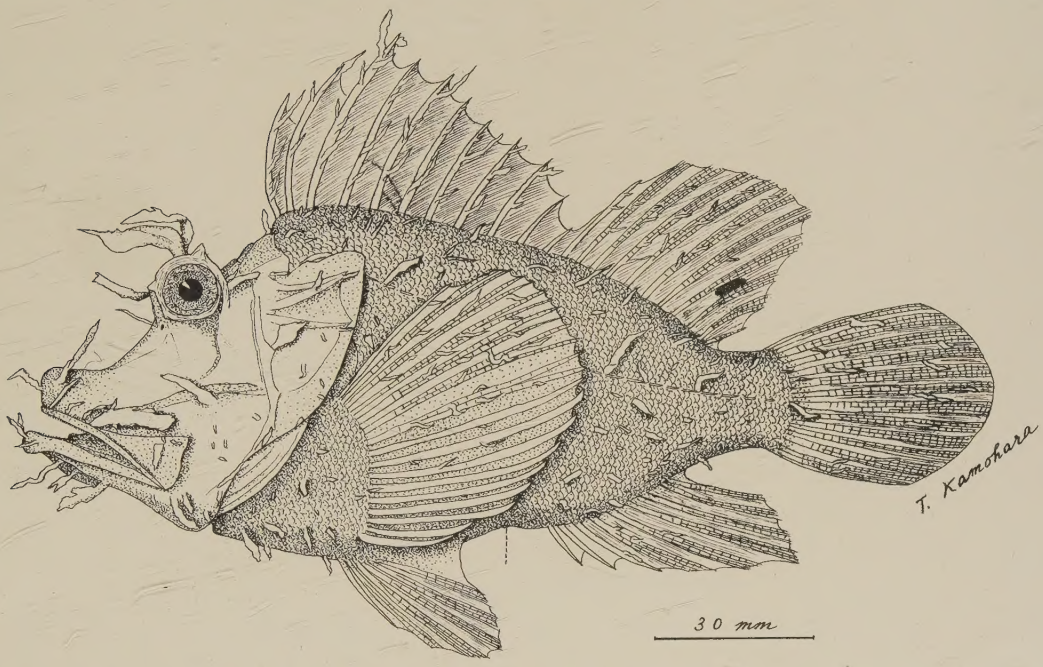

Fig. 2. *Peloropsis frondosus* (GÜNTHER)

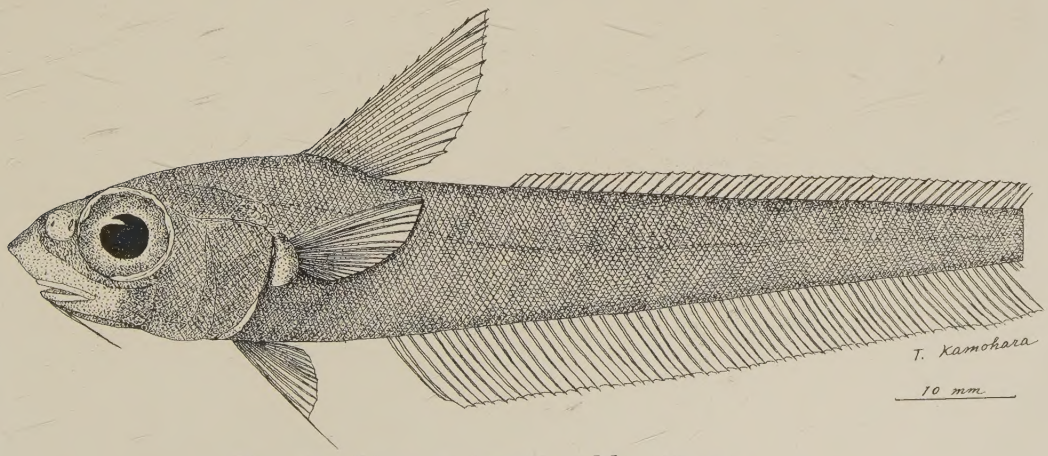

Fig. 3. *Lionurus japonicus* MATSUBARA

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Vol. 6, No. 1, KAMOHARA, T. & KATAYAMA, M. 1959 : A new and a rare anthinid fishes from Kochi Prefecture, Japan.